GMI Componentization

Jules Kouatchou

SIVO-ASTG

Jules.Kouatchou.1@gsfc.nasa.gov

October 12, 2006

Purpose

- Remove GMI common blocks
- Make the code more
  - More flexible
  - More modular
  - More readble
  - ESMF compliant

Goals

- Identify the major components of the code and isolate them
- Identify the supporting resources that are used to drive the major components
- Write proper interfaces to invoke components
- Reorganize the code
- Use coding standards

New Directory Structure

- Applications/
- Components/
- Config/
- Shared/

Component Directory

- GmiChemistry/
- GmiEmission/
- GmiDeposition/
- GmiDiffusion/
- GmiConvection/
- GmiAdvection/

Derived Types

- Chemistry
- Convection
- Deposition
- Diffusion
- Emission
- Advection

- MetFields
- Diagnostics
- SpeciesConcentration

Component Method

For each component, write the routines:

- Initialize
- Run
- Finalize

Benefits

- Each component can be tested in a standalone mode
- Facilitate the design of ESMF wrapper routines (Emission component done and currently working on the Diffusion component)
- Use the experience to componentize other codes

Implications for the GMI Science Community

- All the code modifications do not affect the science results and are transparent to the users.
- The process of componentization will now be followed for the addition of new modules (FastJX53c, aerosol optical depth and SAD, etc.)
- GMI code will be more readable
- The GMI code will be “easily” integrated into the CTM Framework